Claims:

1. (Currently Amended) A method of forming an aluminum alloy, comprising:

(a) providing a heat source and a nozzle;

(b) delivering a feedstock through the nozzle, the feedstock comprising aluminum and at least one alloy element in a quantity that is greater than an equilibrium solute level for the alloy element in aluminum;

(c) directing the feedstock through the nozzle to a point where the feedstock converges with the heat source;

(d) melting the feedstock with the heat source to form a molten pool on a substrate; and

(e) moving the heat source and the nozzle away from the molten pool, such that the molten pool rapidly cools and solidifies to form a continuous line of deposited alloy to form a part, the rapid cooling causing the alloy element to alloy within the aluminum of the part at a level greater than the equilibrium solute of the alloy element within the aluminum.

2. (Original) The method of claim 1, wherein step (a) comprises providing the heat source as a laser that is directed by fiber optics.

3. (Original) The method of claim 1, wherein step (a) comprises providing the heat source as an electron beam.

4. (Original) The method of claim 1, wherein step (a) comprises providing the heat source as an arc.

5. (Original) The method of claim 1, further comprising the step of controlling the heat source with optics and a computer to position the heat source and the nozzle in a desired location for multiple sections and layers of the part being formed.

6. (Currently Amended) The method of claim 1, wherein ~~step (a) comprises providing four nozzles~~said at least one alloy element in step (b) comprises at least 0.6 % by weight of scandium..

7. (Currently Amended) The method of claim 6, ~~further comprising the step of orienting the nozzles at 90E increments relative to each other in an array having a selected radius from, and being centered on the heat source~~ wherein said at least one alloy element in step (b) comprises at least 0.5% by weight of zirconium.

8. (Currently Amended) The method of claim 1, wherein said at least one alloy element in step (b) comprises ~~entraining the feedstock in a gas for delivery into and through the nozzle~~ 0.6%-1.5% by weight of scandium and at least 0.5% of zirconium. ~~.~~

9. (Currently Amended) The method of claim 8, wherein ~~the gas is argon~~ in addition to said at least one element in a quantity greater than its equilibrium solute, the feedstock of step (b) further comprises 2%-4% by weight of lithium, 3%-5% of magnesium .

10. (Original) The method of claim 1, wherein step (e) comprises forming the part with adjacent, side-by-side layers to form a width of the part, and adjacent, stacked layers to form a height of the part.

11. (Original) The method of claim 1, wherein step (b) comprises providing the feedstock as a metallic powder.

12. (Original) The method of claim 1, wherein step (b) comprises providing the feedstock as a metallic wire.

13. (Currently Amended) A method of forming an aluminum alloy, comprising:

(a) providing a heat source and a plurality of nozzles;

(b) mounting the heat source and the nozzles to a movable platform;

(c) delivering a metallic powder through the nozzles , the powder comprising aluminum and at least one alloy element in a quantity that is greater than an equilibrium solute level for the alloy element in aluminum;

(d) directing the metallic powder through the nozzles to a point where streams of the metallic powder converge with the heat source;

(e) melting the metallic powder with the heat source to form a molten pool on a substrate; and

(f) moving the platform for the heat source and the nozzles away from the molten pool, such that the molten pool rapidly cools and solidifies to form a continuous line of deposited alloy to form a part, the rapid cooling causing the alloy element to alloy within the aluminum of the part at a level in excess of its equilibrium solute level.

14. (Original) The method of claim 13, wherein step (a) comprises providing the heat source as a laser that is directed by fiber optics.

15. (Original) The method of claim 13, wherein step (a) comprises providing the heat source as an electron beam.

16. (Currently Amended) The method of claim 13, wherein ~~step (a) comprises providing the heat source as an arc~~ said at least one alloy element of step (c) comprises scandium and zirconium, and in addition to said at least one element in a quantity greater than its equilibrium solute, the powder of step (c) further comprises lithium and magnesium.

17. (Currently Amended) The method of claim 13, ~~further comprising the step of controlling the heat source with optics, the optics also being mounted to the movable platform, and wherein the movable platform is computer-controlled to position the heat source and the nozzles in a desired location for multiple sections and layers of the part being formed~~ wherein said at least one alloy element in step (c) comprises at least 1.0% by weight of scandium.

18. (Currently Amended) The method of claim 13, ~~further comprising the step of orienting the nozzles at 90E increments relative to each other in an array having a selected radius from, and being centered on the heat source~~ wherein said at least one alloy element in step (c) comprises at least 0.5% by weight of zirconium.

19. (Currently Amended) The method of claim 13, wherein ~~step (c) comprises entraining the metallic powder in an inert gas for delivery into and through the nozzles~~ said at least one alloy element in step (c) comprises 0.6%-1.5% by weight of scandium and at least 0.5% of zirconium..

20. (Original) The method of claim 13, wherein step (f) comprises forming the part with adjacent, side-by-side layers to form a width of the part, and adjacent, stacked layers to form a height of the part.

21. – 30. (Canceled)

31. (New) A method of forming an aluminum alloy part, comprising:

(a) providing a heat source and a plurality of nozzles;

(b) mounting the heat source and the nozzles to a movable platform;

(c) delivering a metallic powder through the nozzles , the powder comprising aluminum and scandium in a quantity that is greater than an equilibrium solute level of scandium in aluminum;

(d) directing the metallic powder through the nozzles to a point where streams of the metallic powder converge with the heat source;

(e) melting the metallic powder with the heat source to form a molten pool on a substrate; and

(f) moving the platform for the heat source and the nozzles away from the molten pool, such that the molten pool rapidly cools and solidifies to form a continuous line of deposited alloy to form a part, the rapid cooling causing the scandium to form an alloy within the aluminum of the part at a quantity greater than the equilibrium solute level of scandium in aluminum.

32. (New) The method according to claim 31, wherein the quantity of scandium in step (b) comprises at least 1.0 % by weight.